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NOTES ON THE BALLAST-VEGETATION AT LINNTON, OREGON

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A few notes on the vegetation of the ballast-area at Linnton, Oregon, now included within the city limits of Portland, appeared in *Torreya* 17: 151-161. 1917. Since the first visit in 1915, the station has been visited at least twice each season. The list of species originally reported included many of tropical or sub-tropical origin. These were unable to survive the winter, and disappeared after the first season, although the seeds had probably remained dormant for years after the ballast was first deposited. During the war the entire area, which had long remained undisturbed, was utilized by a ship-building firm. A "cradle" was constructed, which with its planked-over approaches covered perhaps one-fourth of the original area; various tool-sheds and machine-shops were erected, the ground was excavated in many places, and tramped over daily by hundreds of men and horses, so that the vegetation was subjected to a rigorous test and much of it wholly eradicated. Since the conclusion of the war the ship-yard has been abandoned; but as on account of its water-front the site offers a desirable industrial location in the rapid expansion of Portland along the Willamette, it is now being "promoted" by real-estate firms, and on my last visit I found that sand was being pumped from the river to fill in the low places and establish a uniform level—an operation which threatens to smother another considerable part of the surviving vegetation.

But in spite of all these drawbacks, and the further disadvantage that the sand and coarse gravel composing most of the ballast dries out very thoroughly each summer, several of the species originally recorded still persist, and may safely be regarded as permanent additions to the flora of Oregon. Most of these have effected a lodgment on the higher ground in the rear, along the railroad-track, where they run less risk of being

MAR 7 - 1923

disturbed by building operations. Since most of these species occur rarely or not at all elsewhere in Western Oregon, a list of those that appear most likely to persist is herewith presented:

1. *Bromus brizaeformis* Fisch. & Mey. Not uncommon east of the Cascades, but apparently not elsewhere established in the Willamette Valley.

2. *Ammophila arenaria* (L.) Link. This maritime grass is specially adapted to situations of this type, and will be most difficult to eradicate on account of its long tough rootstocks.

3. *Urtica dioica* L. This has been given a wide berth on account of its stinging properties, and occupies a considerable area along one side of the "cradle."

4. *Roubieva multifida* (L.) Moq. Prostrate on the sand. This also occurs in the railroad-yards in Lower Albina, some four miles up the Willamette and on the opposite bank, where ballast also seems to have been deposited in the early days.

5. *Lepidium Draba* L. This is rarely found on vacant lots elsewhere about Portland.

6. *Brassica incana* Tenore. Very persistent over the entire area.

7. *Diplotaxis tenuifolia* (L.) DC. This also occurs at Lower Albina.

8. *Reseda lutea* L. Only a few plants, but persistently reappearing each year.

9. *Reseda Luteola* L. Also at Lower Albina.

10. *Lotus corniculatus* L. This varies greatly in frequency in successive years, but has never entirely disappeared.

11. *Medicago minima* L. Covering the ground in dense mats of considerable extent.

12. *Ulex europaeus* L. Two or three vigorous specimens have persisted. A few isolated plants occur elsewhere in Western Oregon, but it does not show the disposition to spread which is manifested by its near relative, *Cytisus scoparius* (L.) Link.

13. *Melilotus officinalis* (L.) Lam. This seems to flourish exceptionally well on the ballast, reaching a height of 7-10 feet even in dry gravel.

14. *Melilotus indica* (L.) All. During the last year this has been reported from several other stations, and seems to be coming in from the southward.

15. *Verbena officinalis* L. One large clump near the "cradle" has persisted. This has been found well established in the village of St. Paul, Marion Co.

16. *Matricaria inodora* L. Established over the entire area, and escaping to the adjoining territory.

17. *Senecio Jacobaea* L. Also thoroughly established—continues to flower throughout the year, much like *S. vulgaris* of the gardens.

18. *Artemisia vulgaris* L. The most abundant species of the area, forming dense thickets. A less-branched form, with the leaves mostly entire, occurs in Lower Albina.

19. *Carduus nutans* L. Stubbornly persisting over the entire area.

20. *Franseria bipinnatifida* Nutt. Prostrate on the sandy areas. Although this species is not uncommon on the coast of Oregon, where it is clearly indigenous, it is worthy of note at a distance of 100 miles from the sea, and as a component of a flora otherwise foreign.

A number of other species included in the original list have reappeared sporadically now and then since the first report; but they can hardly be regarded as sufficiently well established to withstand the vicissitudes that this plant-society seems called upon to encounter in the near future.

Salem, Oregon

THE FLORA OF THE TOWN OF SOUTHDOLD, LONG ISLAND, AND GARDINER'S ISLAND, NEW YORK

STEWART H. BURNHAM AND ROY A. LATHAM

Third Supplementary List*

INSECT GALLS

Amphibolips acuminata Ashm.—Very abundant on *Quercus ilicifolia* at Laurel; determined by Dr. E. P. Felt.

Cecidomyia viticola O.S.—On leaves of *Vitis* at Mattituck; determined by Dr. Felt.

* The Preliminary flora was published in *Torreyia* 14: 201-225. Nov. 1914 and 229-254. Dec. 1914. The First Supplementary List was published in *Torreyia* 17: 111-122. July 1917. The Second Supplementary List was published in *Torreyia* 21: 1-11. Jan.-Feb. 1921 and 28-33. March-April 1921.